WORKPLAN FOR ESTIMATING WINTERING WATERFOWL OILING AND MORTALITY
BIRD STUDY PLAN #10

Prepared by the Waterfowl Technical Working Group

For the Mississippi Canyon 252 Oil Spill

November 30 2010

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INTRODUCTION

The Deepwater Horizon (MC 252) oil spill began on April 20, 2010 in the Gulf of Mexico off the Louisiana coastline. Oil spill related injury to wildlife is of major concern to the Natural Resource Trustees and the public. At least 30 state wildlife management areas, national wildlife refuges and national parks occur in the area potentially threatened by the oil. Seabirds, colonial waterbirds, shorebirds, and waterfowl are particularly susceptible to impacts from the oil at sea and on land.

Study plans are assessing potential impacts to marsh birds (NRDA Bird Study #3), colonial waterbirds (NRDA Bird Study #4), pelagic seabirds (NRDA Bird Study #6), the endangered Piping Plover (*Charadrius melodius*) (NRDA Bird Study #7) and non-breeding and breeding shorebirds (NRDA Bird Study #5 and #8). This plan, the tenth in a series of avian injury ephemeral data collection studies, seeks to specifically address potential impacts to waterfowl. The objectives of this study are to:

1) Document dead and live oiled and unoiled waterfowl in representative habitats,

2) Estimate the temporal and spatial abundance and distribution of waterfowl within the study area,

3) Examine oiled and not visibly oiled birds collected from representative habitats.

Every year, millions of waterfowl travel from breeding grounds in Canada and the northern United States to the marshes, bays, and estuaries of the Gulf coastal states through the North American migration flyways. These birds winter or stage in Gulf areas before continuing a southward migration or redistributing to other southern U. S. habitats (i.e., Mississippi Flyway, Figure 1).

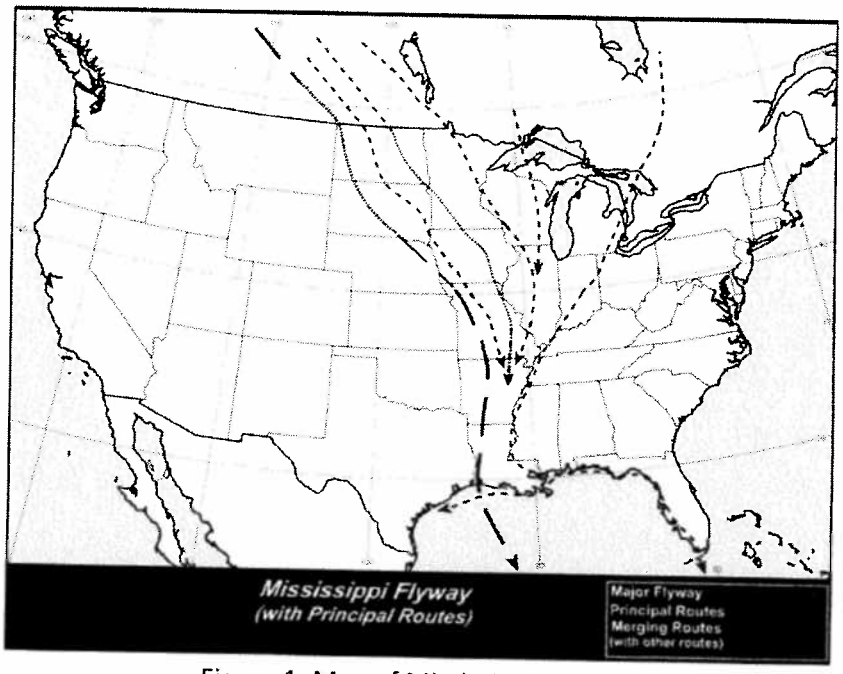

Figure 1. Map of Mississippi Flyway.

STUDY AREA

The study area is broadly described as bays, estuaries, salt marshes, and tidal marshes, including SAV beds and mudflats that serve as waterfowl habitats not currently evaluated as part of any other Natural Resource Damage Assessment (NRDA) studies. In the event of an oil spill, oiled birds may seek refuge on berms or beach loafing areas, or move into the dense marsh grasses. Coastal Louisiana constitutes important wintering waterfowl areas, where this project is primarily focused (USDOI 1981). However, if ongoing data collection reveals oiling of waterfowl or other waterbirds is a concern in adjacent areas, the geographic scope of the study area may be broadened. Likewise, if data indicate few oiled waterfowl are present within surveyed areas, the study area may be contracted.

STUDY DESIGN

Except as otherwise provided in this Waterfowl Plan, data-collection protocols will be developed in accordance with General Operating Procedures (GOPs) discussed below.

Objective 1: Document dead and live oiled and unoiled waterfowl in representative habitats.

Biologists will begin surveys in late fall, when migratory waterfowl start returning to the Gulf Coast. Two carcass-detection methods, Objectives 1A (boat-based marsh edge beached bird survey) and 1B (walking beached bird survey) will be employed to estimate numbers of oiled waterfowl. In addition, live and dead oiled waterfowl will be observed during open water bird surveys (Objective 1C). Survey crews will perform Open Water Bird Surveys (Objective 1C) and Boat-based Beached Bird Surveys (Objective1A) relying on transect initiation points in close proximity to the extent possible to economize effort. Walking Beached Bird Surveys (Objective 1B) will also be conducted on existing beached bird segments (from NRDA Bird Study #1) between Atchafalaya Delta, LA and Apalachicola, FL. The program will be reviewed after 30 days, and at 30 day intervals thereafter, at which time a decision will be made by the Trustees to expand, contract or maintain the scope based on survey results.

1A. Boat-based Beached Bird Survey

A pilot study is underway (Bird Study #11) to evaluate using airboat and skiff surveys along the edge of waterfowl marsh habitats (*Spartina* and *Phragmites*) to search for carcasses in these habitats. This study also will help to evaluate the feasibility of implementing Objective 1A as described. Information gathered as part of Bird Study #11 (anticipated to be completed by mid-November 2010) will be cooperatively reviewed by the Trustees to determine the appropriateness of Objective 1A implementation.

Sampling Area:
Habitats to be sampled include vegetated (robust emergent vegetation) edges of bays, estuaries, and marshes accessible by motorized boat and airboat. Maps showing concentrations of recovered oiled birds, historical waterfowl and waterbird concentration areas, and SCAT maps, as well as other sources of information regarding oiling, will be considered when selecting sampling areas.

Areas of known concentration for waterfowl range from central Texas to the panhandle of Florida. This plan focuses in three areas where oil impacts have been greatest: Mississippi River delta, Terrebonne Bay, and Barataria Bay. If field crews in other areas encounter significant numbers of waterfowl or other waterbird carcasses, survey areas could be expanded. Likewise, if systematic surveys at any of the three initial focal areas detect substantial mortalities, then that will be a trigger for additional surveys in other areas.

Two reference sites will be established on Atchafalaya Delta WMA and Marsh Island/Vermillion Bay where no oil has been observed (as confirmed by current SCAT data). Reference area surveys will be conducted at the same times as impact area surveys to the extent possible. The Trustees will cooperatively review data collected from oil-impacted sites and reference areas to determine if and when the survey effort should be modified.

Target species: This study targets dabbling ducks, diving ducks and geese. To the extent possible, other avian species (especially those that are targeted by other NRDA studies) found dead or oiled will also be recorded. Carcasses encountered during field efforts will be processed according to the Deepwater Horizon (MC 252) Oil Spill Carcass Collection Protocol. The SOP for Carcass handling will be modified appropriately as warranted, e.g., due to a change in Office of Law Enforcement requirements. Any carcasses left in place will be clearly marked following the Carcass Handling SOP.

Sample units: Sample units are transects along stretches of selected marsh (at the outer interface of robust emergent vegetation with open water) within the oil-impact zone that can be searched by a boat-based survey crew. Transect distance will be measured using track file from a field GPS unit. Transects will be approximately 5 km in length. Visibility along some marsh habitat edges will be limited by dense vegetation. Evaluation of this sample unit will be made soon after onset of the study, and methods can be revised to adjust to observed field conditions as agreed by the Trustees in writing. Calculations of sampling area coverage will be adjusted for variable-width sample units and will be clearly documented in SOPs.

Transect locations on areas administered by the National Park Service (NPS), areas within military bases, and those in national wildlife refuges or state wildlife management areas will require consultation with those agencies to identify sensitive areas that should not be surveyed, to acquire appropriate permits, and to determine if crews need to be accompanied by agency personnel during surveys. Standard Operating Procedures for coordinating activities with land managers will be followed to ensure that project implementation is consistent with management goals for the protected area (Appendix B). In addition, transect locations will be coordinated with other TWG activities to ensure that surveys for this study do not overlap with areas set aside for ongoing response or NRDAR activities (e.g., shoreline TWG assessment).

Stratification: Transects will be located in representative marsh habitats supporting "high" or "medium" densities of waterfowl (>1.5 ducks/acre and 0.5-1.5 ducks/acre for marsh habitats, respectively, based on Gulf Coast Joint Venture data sets). Three marshes are in "heavy" and "moderate" oil impact areas based on SCAT maps (Pass a Loutre WMA, Barataria Bay, and

Terrebonne Bay) and two are in unimpacted areas (Atchafalya Delta and Marsh Island/Vermillion Bayside).

Sample Selection: Transects are developed from randomly generated points along the marsh/shoreline in each of five major concentration areas (three oil impacted areas and two reference areas). The marsh edge was manually digitized (1:63424 scale) along the shoreline using a satellite coverage obtained from ESRI's World Imagery (available from ESRI online). A shoreline/marsh polygon was created buffering the line shapefile by 0.5 meters. The "Generate Random Points" function of Hawths tools was used to generate the random points along this polygon in ARC/GIS. Points are restricted to > 500m apart to ensure dispersion within each stratum. If the resultant transect associated with a selected start point offers an edge of marsh less than 5 km, then additional random start points will be used and transects assigned such that a minimum of 50 km of shoreline is surveyed in each of the three oil-impacted marshes (a minimum of 25 kilometers of shoreline will be surveyed in each of two reference areas as well). For each pre-assigned start point, the direction in which the transect runs along the marsh edge will be pre-determined and randomly selected.

Survey duration: Sampling will be initiated in December and extend for 30 days. The start date reflects the timing of arrival for large numbers of migrant waterfowl. If the initial round of searching suggests that carcass collection rates in the control area are similar to those in the "exposed area" then survey effort will be reduced to ¼ of initial effort for another 30 day period, at which time cumulative data will be cooperatively reviewed to inform a decision by the Trustees on further sampling. If additional surveys are warranted, sampling rounds will continue as described above, until no later than 28 February 2011. Results from NRDA Bird Study #11 (carcass detection) will also be considered in the decision of when to terminate sampling efforts.

Sample size: A minimum of 10 transects will be sampled in each of the focus areas (Pass a Loutre WMA, Terrebonne and Barataria bays) corresponding to a minimum of 50km of shoreline coverage. In each of two reference areas (Atchafalaya Delta and Marsh Island/Vermillion Bayside) a minimum of 5 transects will be sampled corresponding to a minimum of 25 km of shoreline coverage. The total number and location of transects may be modified in writing based on experience from initial phase of the study and from results of NRDA Bird Study #11.

Data collection: Boat crews will survey pre-assigned transects based on nearshore normalization via GIS protocols (refer to site selection for additional details). Two observers

(one State and one federal Trustee representative) will be on each survey along with the boat operator.

Teams of observers will search transects for dead waterfowl carcasses along a maximum of 5 km of shoreline for each transect beginning near a pre-assigned random point. Search platforms will be either a small shallow draft vessel or airboat moving at 10 km per hour or the minimum safe speed to maintain steerage (whichever is greater). Airboat use will be restricted to areas where disturbance to recreational hunting is negligible. Crews will conduct simultaneous surveys for live oiled and dead birds.

Survey frequency: Selected transects will be sampled every 3 days, consistent with methods in NRDA Bird Study 1 (estimating mortality of birds using beached bird surveys).

Data Analysis: Data will be collected in a manner that will support the beached bird model used in NRDA Bird Study #1.

1B. Walking Beached Bird Survey

Sampling Area: Beaches and barrier islands will comprise the sampling area from the Atchafalaya Delta in Louisiana eastward to Apalachicola, FL. The sampling area could expand if oiled waterfowl are found outside this study area.

Target species: This study targets dabbling ducks, diving ducks and geese. To the extent possible, other avian species (especially those targeted by other NRDA studies) found dead or oiled in these habitats also will be recorded. Carcasses encountered during field efforts will be processed according to the Deepwater Horizon (MC 252) Oil Spill Carcass Collection Protocol. The SOP for Carcass handling will be modified appropriately as warranted, e.g., due to a change in Office of Law Enforcement requirements. Any carcasses left in place will be clearly marked following the Carcass Handling SOP.

Sample units: Sample units are approximately 1000-m long stretches of beach corresponding to named segments delineated by the oil spill response Incident Command. Sample unit width will be variable, extending from the water line to the high-high tide line, which is identified by the wrack line. If this is not apparent, the inland edge is defined as 50-m inland from the water or vegetation line, whichever comes first. Whenever practicable, oiled or dead individual birds observed outside of sample segments will be recorded as "off transect."

Standard Operating Procedures (Appendix B) for coordinating activities with national wildlife refuges and state wildlife management area land managers will be followed to ensure that

project implementation is consistent with management goals for the protected area. All required permits will be obtained.

Stratification: Post stratification may be considered after evaluating difference among types of beaches and geographic locations.

Sample selections: Beaches have been selected with a systematic random approach and implemented by randomly selecting a start point within the sampling area and selecting every other walkable beach segment in both directions to the edges of the sampling area (refer to NRDA Bird Study #1).

Sample size: Sample size will be approximately 25% of the available segments (those areas without restricted access or other logistical constraints).

Data collection: Data will be collected consistent with protocols outlined in NRDA Bird Study #1. Crews will conduct simultaneous surveys for live oiled and dead birds.

Survey frequency and duration: All pre-existing beached bird transects in LA will be surveyed every three days consistent with protocols for Bird Study #1. A subset of existing beached bird transects in MS, AL, and FL (to Apalachicola) will also be surveyed at a reduced frequency (e.g., every 14 days). Sampling will be initiated in late December and continue 30 days at which time cumulative data will be reviewed to inform decisions on further sampling. If the Trustees agree it is warranted, sampling will continue for another 30 days at which time data will again be reviewed. If oil-related impacts are evident at sentinel survey sites in MS, AL and panhandle Florida, the survey effort may be expanded based on agreement among the Trustees to full scale effort consistent with Bird Study #1 (e.g., sample frequency of every three days and expansion to all pre-existing transects) as needed.

Data analysis: Data that meet the protocol for Bird Study #1 (e.g., collected every 3 days) will be collected in a manner that will support the Beached Bird Model (NRDA Bird Study #1). Other data will be used to document the number and locations of beached birds.

1C. Open Water Bird Surveys

Sampling Area: The sampling area encompasses bays and open water estuaries that are known to have high/medium concentrations of waterfowl and heavy/moderate oiling as described in Objective 1A.

Target species: This study targets dabbling ducks, diving ducks and geese. To the extent possible, other avian species (especially those that are targeted by other NRDA studies) found dead or oiled will be recorded and reported to Wildlife Operations Dispatch. Dead birds will be processed in accordance with the Carcass Collection Protocol (revised 9/23/2010) (Appendix A).

Sample units: Sample units are GPS tracks, or transects, across the bays and open water estuaries.

Sample selection: An attempt will be made to site the transect start point in close proximity (e.g., approximately 300 meters offshore of the marsh edge) to the start of each Objective 1A study site. Transects will run due south a maximum of 5 km in length or to the initial entrance to embayment, whichever comes first.

Sample duration: The first phase of survey transects will be conducted concurrent with Objective 1A). If warranted, the surveys will continue in a phased manner (with data assessment jointly by the Trustees occurring every 30 days) through 28 February 2011.

Stratification: Transects will be in representative bay habitats that historically support "high" or "medium" (>0.5 ducks/acre and 0.1-0.5 ducks/acre for bays, respectively, based on Gulf Coast Joint Venture data sets) duck concentrations and coincide with areas identified with "heavy/moderate" oil impacts as described in Objective 1A. Transects will be stratified by site as described in Objective 1A.

Data collection: Boat crews will survey pre-assigned transect tracklines downloaded on GPS units. Tracklines will be tracked using a GPS recording position. Surveys will be run when the boat is underway on a straight course at a constant speed. A minimum of two observers (one State and one federal Trustee representative) will be on each survey along with the boat operator when boat space allows.

The observers will work as a team and be seated near the bow of the boat with an unobstructed 180 degree field of view, the centerline (90 degrees) being the bow of the boat. The observer's arc will reach 300m away from the boat for the purpose of carcass observation. The perpendicular distance from the centerline will be recorded for each observation. Distance sampling methods will be used to adjust for sightability. Narrow strip transects (e.g. less than 50m) will be used for the purposes of live bird species identification, oiling status observation, and density estimates.

Observers will use binoculars with 10X magnification to identify live and dead waterfowl, identify waterfowl to species, and to determine waterfowl oiling status. All observations will be recorded. Dead birds will be processed in accordance with the current protocols.

Observers will use a range finder provided to familiarize themselves with the transect radius prior to beginning and periodically during the transect. One observer should focus on simple population counts within the strip-transect while the other focuses on confirmed observations of oiling status. Data collected during the surveys will be recorded on the attached data sheets (Appendix E). For each bird, critical information includes: species (or closest taxon), whether the bird was confidently assessed for oiling, and whether the bird was oiled or not. For birds for which oiling status could not be confidently assessed, these observations will be noted for purposes of estimating population sizes, but they will not contribute to the determination of oiling rate. An oiling status is "confidently assessed" when the observer has undoubtedly observed oil on the bird or has undoubtedly observed the bird to be free of oil. Any birds for which oiling status could not be confidently determined due to distance from observer, water conditions, weather or other factors limiting visibility should be noted as "undetermined."

Survey frequency: Transects will be sampled every 3 days.

Survey duration: From December, potentially to February 28, 2011, depending on results from phased 30 day sampling periods.

The Beached Bird Model requires estimates of:

1) Searcher efficiency,
2) Sinking,
3) Removal by scavenging, and
4) Background carcass collection rates.

Depending in part on results of the initial 30 days of 1A-1C effort, carcass persistence and drift and searcher efficiency studies may be cooperatively developed and implemented in separate, supplemental work plans.

Objective 2: Estimate the temporal and spatial abundance and distribution of waterfowl within the study area

Aerial surveys will be conducted to estimate abundance and distribution of waterfowl using near-shore and offshore habitats within the study area.

Surveillance flights will be conducted along existing systematically placed transects used by LDWF (spaced 15 miles apart) following protocols currently utilized by federal and state agencies to allow comparisons with historical data (Figure 2, white transect lines). Additional transects (shown in yellow in Figure 2) will be added between existing/historical transect lines to cover areas known to have been impacted by oil in each of four focal areas (Terrebonne Bay, Barataria Bay, the Mississippi River delta, and the Biloxi Marsh area). Systematic randomly placed transects will be established in each focal areas on 5-mile intervals between the traditional LDWF transects. In order to monitor diving ducks, current transects will also be extended to cover areas where historical concentrations of diving ducks have been identified, including bays extending to both the Timbalier Islands and Isle Dernieres. The USFWS annual flights over the Chandeleur Islands will be used to estimate Redheads (*Aythya americana*) that utilize local seagrass beds. Figure 2 depicts the proposed 21 transects for this survey. With extensions of existing transects and 11 additional transects, the distance is approximately double the LDWF traditional aerial waterfowl survey in Southeast LA.

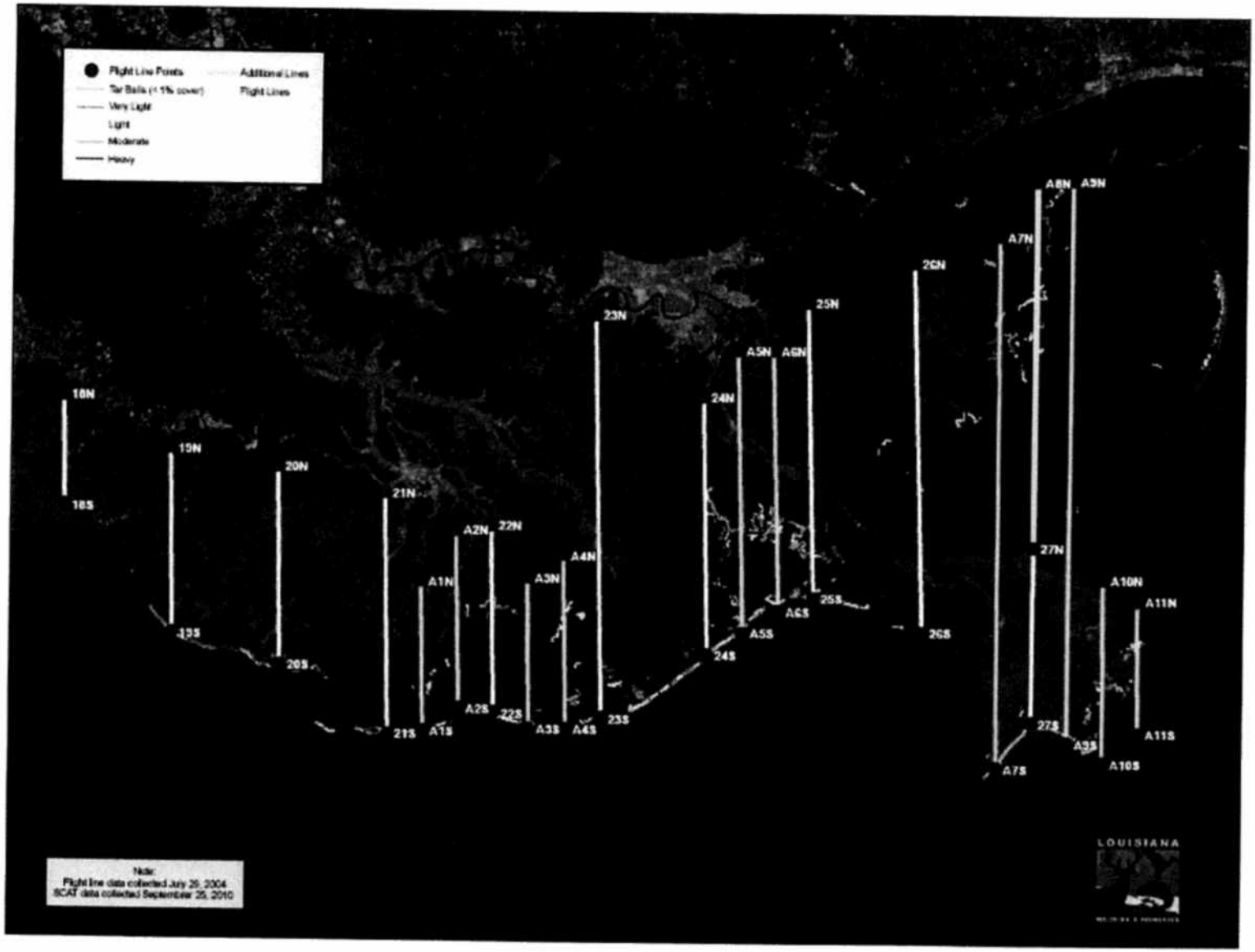

Figure 2. Aerial Louisiana waterfowl survey transects (Atchafalaya Basin to the Mississippi line) for dabbling and diving ducks.

Locations of waterfowl will be recorded using laptops with GPS-equipped voice recording software. A continuous track file will be determined. This will enable geographically explicit counts.

Survey flights will be at or below 200' above sea level moving at 90-100 knots with observers stationed on either side of the aircraft scanning a 200-m fixed-width transect. A third person seated in the copilot's position will assist with navigation and back-up data logging.

Sample frequency: Surveys will be conducted approximately every 18 days. This frequency may be modified as needed.

Sample duration: Surveys will be conducted November through January.

Specific sample sites on areas administered by the NPS, areas within military bases, and those in national wildlife refuges or state wildlife management areas will require consultation with those agencies to identify sensitive areas that should not be surveyed, to acquire appropriate permits, and to determine if crews need to be accompanied by agency personnel during surveys. Standard Operating Procedures for coordinating activities with land managers will be followed to ensure that project implementation is consistent with management goals of the protected area (Appendix B). Research permits to operate within state or federal-owned lands will be requested as needed. Landowner permission will be secured for access to privately held properties.

Two primary observers will fly all the aerial surveys for this evaluation. Individuals will be selected based on prior experience as well as ability to commit to working for the entire study period. LDWF will train observers in accordance with established protocols.

LDWF traditionally conducts aerial waterfowl surveys once per month in November, December, and January in coastal Louisiana. The southeast portion of the survey takes approximately 1.5 days to fly and process data. Three additional surveys, transect extensions, eleven additional transects, and spatial referencing necessary for this study will add 2 days to normal surveys and 2 days of additional surveys.

Objective 3: Examine oiled and not visibly oiled birds collected from representative habitats.

Visual inspection and sample analysis of collected waterfowl

Information will be collected from carcasses harvested legally for other LDWF work (see below) to evaluate "birds in hand" for signs of oil exposure.

A maximum of 305 waterfowl will be collected for pre-existing LDWF studies:

- 150 Mottled Ducks (*Anas fulvigula*) (collected for LDWF Avian Influenza Study)
- 155 (in the aggregate) of Blue-winged Teal (*Anas discors*), Northern Pintail (*Anas acuta*), and Lesser Scaup (*Aythya affinis*) (collected for LDWF Consumption Safety Study).

A sample of Mottled Ducks will consist of 75 potentially oiled Mottled Ducks collected from Pass a Loutre WMA and Barataria Bay and 75 potentially unoiled from Rockefeller Refuge and Atchafalaya Delta WMA. A large-scale study of Mottled Ducks examining movements, habitat use, and survival (F Rohwer and B Davis, pers. comm.) suggests that birds using the Mississippi River and Atchafalaya River Deltas are site faithful, so it is unlikely that the birds would move between areas. The 155 other ducks will be taken from within oil impacted areas.

Upon retrieval, all birds will be visually inspected for oil contamination and photographed. In addition, the birds will be inspected and photographed under UV light, which inspection will be performed pursuant to a SOP or SOPs, which will be developed as soon as is practicable.

Morphometric measurements, including weight, will be recorded. Six feather samples will be taken from each bird from predetermined locations on the bird along with an additional feather if oiled but not found in one of the predetermined locations. Feathers from each bird will be contained in foil individually and each group of feathers will be marked with a unique sample identifier according to protocol. Samples will be placed on ice until frozen (within 12 hours of harvest). Sample material not needed for the avian flu or consumption safety studies will be archived. All blood samples will be drawn and archived according to a written SOP. Livers from at least 55 Mottled Ducks (at least 5 collected from non-oiled areas and the remainder from mixed impact areas) will be removed and archived. All tissue, blood, and feather sample material not needed for the avian flu or consumption safety studies will be archived according to a written SOP.

GENERAL OPERATING PROCEDURES

Development of Written Standard Operating Procedures

Data-collection protocols and other project related activities (site selection, field protocols, data recording and transfer)-will be guided by written SOPs if such SOPs are deemed appropriate by the Trustees. These SOPs will be submitted in a timely fashion to Trustees for review. Any SOPs identified during development of the work plan should be submitted no later than 30 days after initiation of the activity to which the SOP applies, unless a longer period is agreed to, or is needed to ensure successful implementation of the work plan. For example, time-critical data collection activities driven by biologically determined windows of opportunity

are a priority and may prevent submission of SOPs within the 30-day period established under this Plan. SOPs that are not anticipated at the time of signature, or are modified after work has been initiated, should be provided for review as soon as practicable after the need is identified or the modification is made.

Chain-of-custody procedures will be observed at all times. All samples and data sheets will be transferred with appropriate chain of custody forms.

Laboratory Data

All field and laboratory data will be collected, managed and stored in accordance with US EPA Good Laboratory Practice regulations (GLPs) to the extent practicable. In accordance with GLPs, all field and laboratory work, and the calibration and use of field and laboratory equipment (e.g. scales, hand held GPS devices, etc.) shall be conducted using written Standard Operating Procedures (SOPs). The appropriate training on particular equipment or in the conduct of specific field studies for all personnel involved with the project shall be documented and those records kept on file by the implementing entity for the duration of this project. All data (including electronically archived data), and original data sheets or electronic files, must be promptly transferred to USFWS, LOSCO and other Trustees. All samples will be sent to NRDA approved laboratories.

Each laboratory shall simultaneously deliver raw data, including all necessary metadata, generated as part of this work plan as a Laboratory Analytical Data Package (LADP) to the trustee Data Management Team (DMT), and the Louisiana Oil Spill Coordinator's Office (LOSCO) on behalf of the State of Louisiana. The electronic data deliverable (EDD) spreadsheet with pre-validated analytical results, which is a component of the complete LADP, will also be delivered to the secure FTP drop box maintained by the trustees' Data Management Team (DMT). Any preliminary data distributed to the DMT shall also be distributed to LOSCO. Thereafter, the DMT will validate and perform quality assurance/quality control (QA/QC) procedures on the LADP consistent with the authorized Analytical Quality Assurance Plan, after which time the validated/QA/QC'd data shall be made available simultaneously to all trustees. Any questions raised on the validated/QA/QC results shall be handled per the procedures in the Analytical Quality Assurance Plan and the issue and results shall be distributed to all parties. In the interest of maintaining one consistent data set for use by all parties, only the validated/QA/QC'd data set released by the DMT shall be considered the consensus data set. In order to ensure reliability of the consensus data and full review by the parties, no party shall publish consensus data until 7 days after such data have been made available to the parties. Also, the LADP shall not be released by the DMT or LOSCO prior to validation/QA/QC absent a showing of critical operational need. Should any party show a critical operational need for data

prior to validation/QA/QC, any released data will be clearly marked "preliminary/unvalidated" and will be made available equally to all trustees.

Field data transfer -- Prior to concluding each field day, teams will share (1) all data sheets (2) all official photographs, and (3) the official GPS track log using methods developed as part of the Beached Bird Survey (Study #1) effort. Those data (data sheets, track logs, photos, any and all data collected as part of the field effort) will be e-mailed to LOSCO within 3 days of its being collected. In the event that transfer of such data is delayed due to equipment malfunction or other reasons, it will be emailed as soon as practicable.

Carcass Management - Carcasses encountered during field efforts will be processed according to the Deepwater Horizon (MC 252) Oil Spill Carcass Collection Protocol as it may be amended.

Safety – Field teams will comply with existing training and safety protocols as applicable to operations. Prior to commencement of field activities, the Trustees will agree upon a person or persons to whom study participants may report any safety concerns. Such person(s) will take action to address and resolve reported concerns.

Adaptive Management of Field Efforts – Adaptive management meetings will occur at approximately 30 day intervals. During these meetings adherence to SOPs will be reviewed and discussed. The trustees will also review the information collected to date and will determine if there is joint agreement that continued data collection is not warranted.

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Appendix A
Carcass Collection
Standard Operating Procedures for NRDA Crews
Revised 9/23/2010

Fresh, oiled bird carcasses

Collect the carcasses of only fresh (intestines intact), oiled birds both within and outside the survey for USFWS Office of Law Enforcement.

Follow the Carcass Collection Protocol for fresh, oiled bird carcasses.

Take or Fed Ex collected carcasses to appropriate state center (see attached list).
Call before you Fed Ex to confirm that someone will be there to receive your package.

Old, oiled and unoiled bird carcasses within the survey.

Follow existing carcass documentation procedures but do not collect the carcass or include evidence seizure tag number information.

Old, oiled and unoiled bird carcasses outside the survey

Document as per your study protocol.

Mark all documented carcasses left on-site. Spray paint is the recommended method of marking carcasses. Do not collect or document marked carcasses on subsequent surveys.

For bird carcasses with radio transmitters.

Collect bird carcass and transmitter. Do not separate transmitter from bird. Obtain transmitter number. Place the carcass on ice. Call the USGS Patuxent Wildlife Research Center ( ). They will provide information to associate the transmitter with the correct scientific study contact. Call transmitter study contact and determine proper disposition of bird and transmitter.

Oiled live birds.

Call one of the following numbers based on collection location of carcass.

Louisiana	select option 2
Mississippi	(Casey Sartin) 10-7-10 no longer valid for live birds; have freezer
Alabama	press 4 (Susan Clemens)
Florida	(Dorothy Kaufman)

APPENDIX B

PROTOCOL FOR REQUESTING ACCESS
to
US FISH AND WILDLIFE SERVICE
NATIONAL WILDLIFE REFUGES
For
Natural Resource Damage Assessment Activities
MSC252 – Deep Water Horizon

To be used with respect to Natural Resource Damage Assessment (NRDA) activities related specifically to the BP Mississippi Canyon 252 Oil Spill in the Gulf of Mexico

National Wildlife Refuge (NWR) lands are some of the most sensitive areas in the oil spill area. National Wildlife Refuge managers have been overwhelmed with requests for data collection on NWR lands. Collection of data from NWRs is vitally important and coordination with NWR staff on all activities on NWR lands is needed. The refuge staff are experts on their NWRs and integration into appropriate ongoing refuge activities, as applicable, is important. The purpose of this protocol is to facilitate assessment by providing central points of contact for NWR managers and Technical Working Group (TWG) members. The refuge staff are experts on their NWRs and integration into appropriate ongoing refuge activities, as applicable, is important. To assist with NRDA data collection, please use the Access Request Form to facilitate your pre-assessment and assessment needs.

The form is located on the ftp site: / under *Field Operations* in the *Scientific Research and Collecting Permits* file. Please submit access request and associated assessment work plan(s) to . After the request is received by an NWR liaison you will be contacted to arrange access to the requested site.

NRDA NWR Liaison:
NWR Liaison:

Access Request Form
U.S. Fish and Wildlife Service
National Wildlife Refuges
for
Natural Resource Damage Assessment Activities

Send completed request to:

National Wildlife Refuge: _____

Technical Working Group: _____

Title of Assessment Plan(s): _____

_____

Contact: _____
Name email

_____
Phone #(s)

Goal of Plan/Study: _____

Date(s): _____

Type of Assessment (i.e., aerial surveys, biotic/abiotic sampling, visual surveys):

_____

Resource support needs (boat etc): _____

Information Needs from NWR: _____

_____

Incident-Specific Guidance for Scientific Research and Collecting Permit applicants
May 14, 2010
To Be Used Only With Respect To Scientific Activities Related Specifically To The BP Mississippi Canyon 252 Oil Spill In The Gulf Of Mexico

The purpose of this information is to provide guidance to those who wish to conduct scientific activities in parks impacted by the oil spill.

- Activities related to response/clean-up up do not require a Scientific Research and Collecting Permit. Contact the park directly to determine how to proceed.
- Proposed activities that trigger the requirement to apply for a Scientific Research and Collecting Permit include Natural Resource Damage Assessment (NRDA) activities, scientific specimen collection, data collection, inventory, monitoring, and research.

If you need a permit this is what you do:

- Access the Research Permit and Reporting System (RPRS) web site:
- Choose "Submit applications for research permits" and follow the instructions
- Please identify the funder of your activity in the "Purpose of Study" field.
- Be sure to complete the process. You will know you are done when the system provides you the option to print a copy of your application. This page also provides an "Apply for another Research Permit" option by which you may submit the same application to additional parks. This option saves time by porting the data you entered in your original application into the new application, and you will be able to edit the data in the new application.
- Park contact information is provided at the beginning and end of the application process. It is a good idea to follow up your application by checking in with the Park Research Coordinator.
- If you are unable to submit your application on-line, you may contact the park directly. The park has the option of processing permit applications via paper forms.

Additional Points

- Park contact information is available from the RPRS web site; choose the "Park Info" menu item.
- A National Park Service resource advisor/observer may be assigned to accompany you in the field.
- Review of applications related to the oil spill will be expedited.
- Review of applications not related to the oil spill may be delayed.
- For questions related to the process of submitting an application you may contact Bill Commins at
- For questions related to the status of your application, contact the Park Research Coordinator.
- Additional appendices will be included to cover assessment methods, SOPs and protocols associated with the activities within the spill area.

Waterfowl Bird Study #10 budget

An estimate of the required budget for this project is attached. In addition, data sharing agreements between natural resources trustees, Louisiana State University, Biodiversity Research Institute, will be developed and implemented.

	Cost per unit	Number of units	Total
Objective 1:			
1A Budget for Boat-based Beach Survey			
Salary			
Program Coordinator			$40,000
Fringe benefits			$14,400
Two (2) research associates			$12,000
Fringe benefits			$4,320
Fourteen (14) technicians			$67,200
Fringe benefits			$5,141
Travel/Housing/Food			$72,000
Field and Safety Supplies			$8,000
Mileage for vehicles			$15,744
Boats			
(8) Vessels of opportunity			$288,000
LSU Ag Center Overhead			$221,258
Total for Objective 1A			**$748,063**
1B Budget for Walking Beach-Bird Survey			
Salary			
Program Coordinator			$5,000
Fringe benefits			$1,800
Four (4) survey technicians			$19,200
Fringe benefits			$1,469
Travel/Housing/Food			$10,800
Field Supplies			$2,000
Mileage for vehicles			$8,832

Boat		
(1) Vessels of opportunity		$21,600
LSU Ag Center Overhead		$29,694
Total for Objective 1B		**$100,395**

1C Budget for Open Water Bird Surveys

Salary		
Program Coordinator (25% of salary)		$15,000
Fringe benefits	36%	$5,400
Research Associate		$6,000
Fringe benefits	36%	$2,160
Five (5) survey technicians	$2,400/month/persor	$24,000
Fringe benefits	7.65%	$1,836
Travel/Housing/Food	$90/day/person	$32,400
Cameras	$1,000	$5,000
Field and Safety Supplies		$4,000
Mileage for vehicles	$0.48/mile	$6,768
Boats		
(3) Vessels of opportunity	$1200/day	$90,000
LSU Ag Center Overhead		$80,877
Total for Objective 1C		**$273,441**

1D Budget for Examination of carcasses (will be pursued in supplemental work plan if warranted)

1E Budget for Search Efficiency (will be pursued in supplemental work plan if warranted)

Objective 2: (21 transect lines; 3 months @ 18 days apart = 6 runs)

Budget for Aerial Surveys

Salary Three (3) surveyors		$10,800
One (1) pilot	*(included in equipment costs)*	
Travel/Commodities		$ 9,600
Other Costs		$ 2,500
Facilities/Administration (20%)		$ 4,580

TOTAL PERSONNEL COST	$27,480
• Airplane with pilot	$28,800
• Supplies (paper, pencils, clipboards, guides, etc.)	$ 1,500
TOTAL EQUIPMENT COST	$30,300
Total for Objective 2	**$57,780**

Objective 3: Budget for Mottled Duck feather samples beyond LDWF studies

Salary Two (4) surveyors	$ 10,000
One (2) boat operator	$ 4,000
Overhead	$ 750
Other Costs	$ 2,000
Facilities/Administration (20%)	$ 3,350
TOTAL PERSONNEL COST	$20, 100
• Tissue Samples	$33,000
• Amino Assay	$ 7,625
• Ice Chest (85-120 qt) + ice	$ 900
• feather sampling supplies (foil, etc)	$ 330
• Supplies	$ 800
TOTAL EQUIPMENT COST	$44,655
Total for Objective 3	**$62,755**

SUMMARY

Objective 1:

Total for Objective 1A	**$748,063**
Total for Objective 1B	**$100,395**
Total for Objective 1C	**$273,441**
Objective 2:	
Total for Objective 2	**$57,780**
Objective 3:	
Total for Objective 3	**$62,755**

OVERALL TOTAL	$1,242,434

WORK PLAN FOR ESTIMATING WINTERING WATERFOWL

OILING AND MORTALITY

DEEPWATER HORIZON (MISSISSIPPI CANYON 252) OIL SPILL

BIRD STUDY #10

Approval of this work plan is for the purpose of obtaining data for the Natural Resources Damage Assessment. Each party signing below reserves its right to produce its own independent interpretation and analysis of any data collected pursuant to this work plan

APPROVAL

Karen F. Cathey 11/30/2010

Trustee NRDA Bird Group Lead Date

FOR ROLAND GUIDRY 12/07/10

State of Louisiana Trustee Representative Date